

# National Drug-Related Deaths Index

## 2004 to 2016 Data



Research. Evidence. Action.

### Introduction

This bulletin presents figures from the National Drug-Related Deaths Index (NDRDI) on deaths due to poisoning (overdose) by alcohol and/or other drugs, and deaths among drug users (non-poisoning), in the period 2004–2016.

### Overview

In the thirteen-year period 2004–2016 there were a total of 8,207 drug-related deaths:

- 4,597 (56%) were due to poisoning
- 3,610 (44%) were non-poisoning.

In 2016, there were 736 deaths (poisoning and non-poisoning combined), similar to the number reported in 2015 (735):

- Median age for all deaths in 2016 was 42 years and 75% (549) of all deaths were male
- There were approximately **21,300 of potential life years lost** because of drug-related deaths in 2016.

Drug-related deaths in 2016 among people who **Inject drugs**:

- 5% of all deaths were among people who inject drugs
- 65% died in Dublin City.

### Poisoning deaths in 2016

The annual number of poisoning deaths decreased by 3%, from 365 in 2015 to 354 in 2016. Almost two thirds of poisoning deaths involved **polydrugs**, with an average of four different drugs involved.

Benzodiazepines were the most common prescription drug group implicated in polydrug deaths.

### Trends 2004 to 2016

In the thirteen year period 2004–2016 a total of 8,207 poisoning deaths and deaths among drug users met the criteria for inclusion in the NDRDI database. The number of deaths increased by 71% during this period

The number of deaths involving **licit drugs** continues to increase, being implicated in seven out of ten poisoning deaths in 2016:

- Methadone was the most common single prescription drug implicated in almost one third (103, 29%) of all poisonings
- Diazepam (a benzodiazepine) was implicated in one in four (96, 27%) poisonings
- Pregabalin-related deaths have increased by 364%, from 14 deaths in 2013 to 65 in 2016.
- Alprazolam-related deaths have increased by 283% from 12 deaths in 2010 to 46 in 2016.

The number of deaths where the **illicit drug** cocaine was implicated increased by 95% since 2010:

- Cocaine-related deaths increased between 2010 and 2015, with a slight decrease to 41 deaths in 2016 compared to 45 deaths reported in 2015.

**Alcohol** was implicated in 132 deaths (37% of all poisonings):

- Alcohol-related deaths have increased by 18%, from 2015 (112) to 2016 (132).
- Alcohol alone was responsible for 16% (55) of all poisoning deaths in 2016, up from 13% in 2015.

### Non-poisoning deaths in 2016

The number of non-poisoning deaths increased by 3%, from 370 in 2015 to 382 in 2016. The main causes of non-poisoning deaths were hanging (93, 24%) and cardiac events (56, 15%):

- Of those who died due to hanging, 75% had a history of mental health problems.

from 431 in 2004 to 736 in 2016. The figures in this update supersede all previously published figures. The 2016 figure of 736 deaths (Table 1) is likely to be revised upwards when new data becomes available from closed inquest files.

**Table 1 Number of deaths, by year, NDRDI 2004 to 2016 (N = 8,207)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All deaths (total)	431	502	554	620	629	655	607	644	661	707	726	735	736
Poisonings (4,597)	266	300	326	386	387	371	339	377	356	400	370	365	354
<i>Poisonings male</i>	175	199	228	269	274	253	251	274	264	273	267	239	243
<i>Poisonings female</i>	91	101	98	117	113	118	88	103	92	127	103	126	111
Median age	40	39	36	36	38	38	40	39	40	41	39	41	42
Non-poisonings (3,610)	165	202	228	234	242	284	268	267	305	307	356	370	382
<i>Non-poisonings male</i>	153	176	192	178	196	212	207	217	234	239	281	292	306
<i>Non-poisonings female</i>	12	26	36	56	46	72	61	50	71	68	75	78	76
Median age trauma	27	27	27	28	28	30	31	30	31	33	33	34	34
Median age medical	38	38	43	42	42	40	44	45	46	47	47	49	46

## Deaths among people who inject drugs

People who were injecting at the time of the incident that lead to their death represented 5% of all drug-related deaths in 2016 (Table 2). Of these deaths:

- 88% were male;
- 91% were poisoning deaths;
- 65% died in Dublin City;
- 85% of the poisoning deaths involved opiates.

Of those in 2016 who injected drugs and died of a poisoning death which involved **opiates** (29):

- 45% were not alone at the time of the incident that led to their death;
- 31% injected in a public place;
- 34% involved a single opiate type drug.

**Table 2 Individual deaths among people who inject drugs, NDRDI 2004 to 2016 (N = 667)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All NDRDI deaths	431	502	554	620	629	655	607	644	661	707	726	735	736
<b>People who injected drugs at time of death (% of all deaths)</b>	<b>34</b> <b>(7.9)</b>	<b>49</b> <b>(9.8)</b>	<b>61</b> <b>(11.0)</b>	<b>56</b> <b>(9.0)</b>	<b>67</b> <b>(10.7)</b>	<b>69</b> <b>(10.5)</b>	<b>50</b> <b>(8.2)</b>	<b>47</b> <b>(7.3)</b>	<b>38</b> <b>(5.7)</b>	<b>49</b> <b>(6.9)</b>	<b>57</b> <b>(7.9)</b>	<b>56</b> <b>(7.6)</b>	<b>34</b> <b>(4.6)</b>
<b>All deaths among people who inject drugs</b>	<b>34</b>	<b>49</b>	<b>61</b>	<b>56</b>	<b>67</b>	<b>69</b>	<b>50</b>	<b>47</b>	<b>38</b>	<b>49</b>	<b>57</b>	<b>56</b>	<b>34</b>
<i>Male</i>	31	43	55	41	47	58	45	41	33	42	50	51	30
<i>Female</i>	~	6	6	15	20	11	5	6	5	7	7	5	~
<b>Place of incident*</b>													
Dublin City	*	*	*	*	*	*	*	*	*	21	28	29	22
Outside of Dublin City	*	*	*	*	*	*	*	*	*	17	21	28	12
<b>Type of death</b>													
Poisoning	31	42	56	53	54	56	44	42	35	47	53	49	31
Non-poisoning	~	7	5	~	13	13	6	5	~	~	~	7	~
<b>All poisoning deaths</b>	<b>266</b>	<b>300</b>	<b>326</b>	<b>386</b>	<b>387</b>	<b>371</b>	<b>339</b>	<b>377</b>	<b>356</b>	<b>400</b>	<b>370</b>	<b>365</b>	<b>354</b>
Poisoning deaths involving people who inject drugs (% of all poisoning deaths)	31 (11.7)	42 (14.0)	56 (17.2)	53 (13.7)	54 (14.0)	56 (15.1)	44 (13.0)	42 (11.1)	35 (9.8)	47 (11.8)	53 (14.3)	49 (13.4)	31 (8.8)
<b>Poisoning deaths involving opiates among people who inject drugs of whom:</b>	<b>30</b>	<b>39</b>	<b>50</b>	<b>49</b>	<b>51</b>	<b>54</b>	<b>41</b>	<b>39</b>	<b>32</b>	<b>46</b>	<b>51</b>	<b>46</b>	<b>29</b>
deceased was not alone	9	23	25	25	28	32	20	17	18	17	25	19	13
deceased was in a public place	8	10	17	14	7	12	8	5	5	7	18	9	9
death was caused by a single opiate drug	19	12	24	15	13	22	20	12	6	15	14	8	10

~ Less than five deaths. \*NDRDI commenced collecting data on place of incident that led to death from 2012 onwards.

# Poisoning deaths in 2016

The annual number of poisoning deaths decreased slightly from 365 in 2015 to 354 in 2016 (Table 1). Males have accounted for the majority of deaths in each year since 2004; 69% of all poisoning deaths in 2016 were male. The median age of those who died in 2016 was 42 years, slightly older than previous years.

As the number of deaths fluctuate year on year, Figure 1 shows the three year moving averages. These are likely to provide a better guide to the long-term trend than the change between any two individual years. After an increase from 2004 to 2008 the average number of deaths has plateaued.

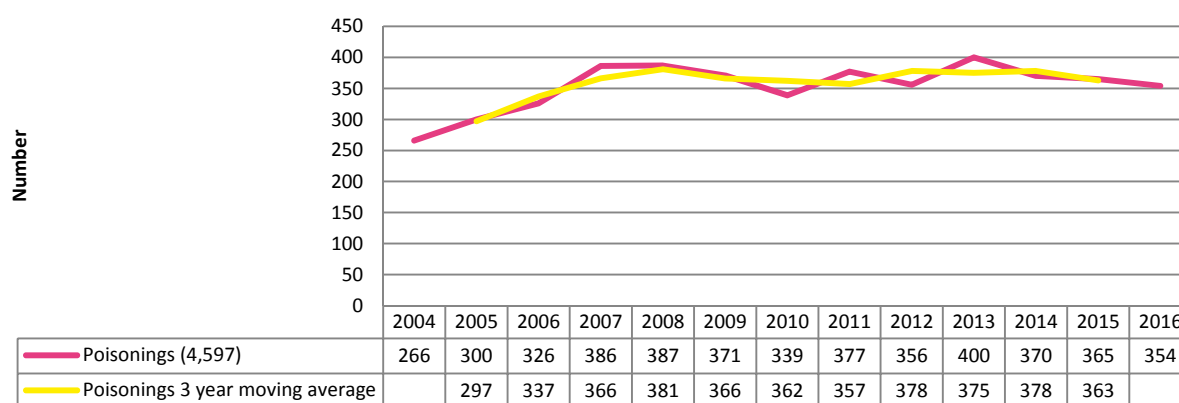


Figure 1 Poisoning deaths, three year moving averages, NDRDI 2004 to 2016 (N = 4,597)

**Opiates** were the main drug group implicated in poisoning deaths in Ireland in 2016 (Table 3).

- Methadone was implicated in almost a third (103, 29%) of poisonings (Table 4).
- Number of deaths where heroin was implicated decreased for the third year in a row, from 83 in 2015 to 72 in 2016.
- Fentanyl was implicated in 7 poisoning deaths.

**Licit drugs** (prescription or over-the-counter drugs) were implicated in 73% (258) of all poisoning deaths in 2016. Table 3 shows the most common drug groups, while Table 4 shows the most common individual drugs implicated in poisoning deaths:

- Benzodiazepines continue to be the most common **prescription** drug group implicated in poisoning deaths
- Methadone was the most common prescription drug, implicated in 103 (29%) poisoning deaths
- Pregabalin-related deaths have risen year on year, with an increase of 33% between 2015 and 2016, from 49 to 65.

- Alprazolam-related deaths have fluctuated over the reporting period with an overall increase of 283% from 12 deaths in 2010 to 46 in 2016.

Overall, the number of deaths where **illicit** drugs were implicated decreased in 2016 (Tables 3 and 4):

- Cocaine-related deaths increased year on year from 21 in 2010 to 45 in 2015, with a slight decrease to 41 in 2016
- The same number of MDMA-related deaths (8) were reported for 2015 and 2016
- Individual deaths where new psychoactive substances (NPS) were implicated decreased from 10 in 2015 to less than 5 in 2016.

**Alcohol** was the single most common drug implicated over the reporting period. It was implicated in 37% of all poisoning deaths in 2016 (Table 3 and 4):

- The number of deaths involving alcohol has increased by 18% from 112 in 2015 to 132 in 2016
- Alcohol alone was responsible for 16% (55) of all poisoning deaths in 2016.

## Multi-response analysis for drugs involved in poisoning deaths

The majority (62%) of poisoning deaths had more than one drug implicated, for example alcohol along with diazepam and methadone, thus Table 3 and

Table 4 count all occurrences of drugs implicated. Therefore, individuals who died due to alcohol along with diazepam and methadone, are counted in the alcohol figures but are also counted in the diazepam figures and in the methadone figures.

**Table 3 Multi-response: Occurrence of specific drug groups in poisoning deaths NDRDI 2004 to 2016 (N = 4,597)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>All poisoning deaths*</b>	266	300	326	386	387	371	339	377	356	400	370	365	354
Opiates <sup>†</sup>	131	159	184	190	219	236	190	260	223	253	264	261	245
Benzodiazepines	77	79	116	124	123	136	129	251	174	238	238	219	230
Alcohol	125	116	114	171	156	143	151	143	129	143	121	112	132
Antidepressants	54	53	43	47	87	67	67	98	89	122	124	107	112
Other prescription meds <sup>§</sup>	43	40	40	60	63	60	78	91	102	144	197	211	211
Stimulants (excluding NPS) <sup>‡</sup>	32	46	63	84	68	56	22	35	38	46	57	53	49
Non-opiate analgesics	13	23	10	19	18	16	15	21	23	31	31	26	36
New Psychoactive substances	0	0	0	0	0	5	6	8	8	30	23	10	~
Others/Unknown <sup>‡</sup>	7	22	19	23	30	42	30	29	29	35	24	26	13

\*This is a multi-response table taking account of up to six drugs. Therefore numbers in columns will not add up to totals shown, as individual cases may have more than one drug implicated in their death.

† Includes heroin; methadone; morphine; codeine; unspecified opiate-type drug; other opiate analgesics.

§ Includes non-benzodiazepine sedatives (e.g. zopiclone); anti-psychotic; antiepileptic (e.g. pregabalin); cardiac and other prescription meds

‡ Includes cocaine and MDMA.

‡ includes solvents; insecticides; herbicides; other amphetamines; hallucinogens and other chemicals.

~ Less than five deaths.

**Table 4 Multi-response: Occurrence of specific drugs in poisoning deaths, NDRDI 2004 to 2016 (N = 4,597)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>All poisoning deaths*</b>	266	300	326	386	387	371	339	377	356	400	370	365	354
Alcohol	125	116	114	171	156	143	151	143	129	143	121	112	132
Methadone	40	43	60	58	80	70	60	116	87	94	105	89	103
Diazepam	31	41	64	62	65	81	68	133	92	113	121	105	96
Heroin	29	47	68	81	91	114	72	64	64	88	96	83	72
Pregabalin	0	0	0	0	0	~	~	~	~	14	27	49	65
Zopiclone	5	~	7	6	10	12	18	22	23	52	73	64	59
Alprazolam	~	~	~	~	~	~	12	32	17	45	47	44	46
Flurazepam	18	13	23	21	20	25	27	50	29	42	36	33	42
Cocaine	19	36	55	65	61	53	21	24	26	32	42	45	41
Amitriptyline	10	12	8	5	21	13	9	14	15	24	20	25	26
Citalopram	14	13	8	13	20	20	20	32	16	23	21	21	21
Olanzapine	0	0	0	0	~	8	13	9	19	28	17	19	20
Quetiapine	0	0	0	~	~	~	~	13	10	12	18	19	19
MDMA	13	10	8	19	7	~	~	11	12	14	15	8	8
Fentanyl	~	0	0	0	0	~	0	~	~	~	~	7	7
Etizolam	0	0	0	0	0	0	0	0	0	0	~	7	6

\*This is a multi-response table taking account of up to six drugs. Therefore numbers in columns will not add up to totals shown, as individual cases may have more than one drug implicated in their death.

~ Less than five deaths.

## Polydrug poisonings

The majority of poisoning deaths in 2016 involved **polydrugs**. The percentage of deaths due to polydrug poisonings rose from 44% (118) in 2004 to 62% (219) in 2016 (Figure 2). Polydrug use is a significant risk factor for fatal overdose:

- Alcohol-related deaths: 58% (77) in 2016 involved other drugs, mainly opiates
- Methadone-related deaths: 88% (91) in 2016 involved other drugs, mainly benzodiazepines

- All diazepam-related deaths (96) in 2016 involved other drugs, mainly opiates
- Heroin-related deaths: 81% (58) involved other drugs, mainly benzodiazepines.

The number of drugs involved in each poisoning death has also risen over the period. In 2016, an average of four drugs was involved in polydrug poisoning deaths compared to an average of two in 2004 (Table 5).

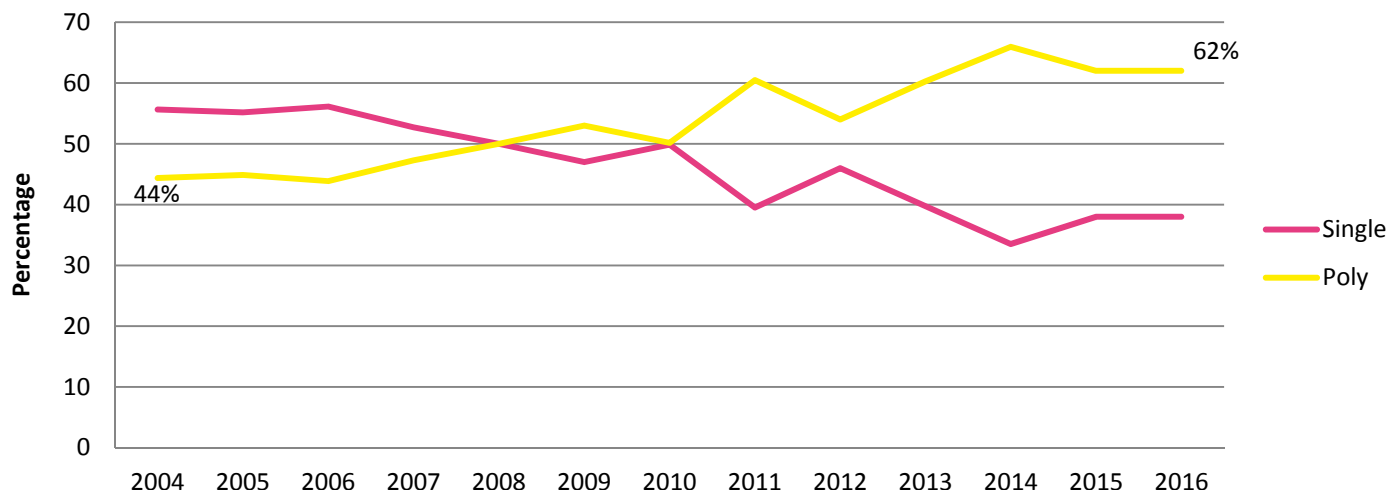


Figure 2 Evolution of polydrug poisonings, NDRDI 2004 to 2016 (N = 4,597)

Table 5 Multi-response; Polydrug Poisoning deaths: combinations of main drugs that were implicated along with alcohol, methadone, diazepam and heroin, NDRDI 2016

	Alcohol	Methadone	Diazepam	Heroin
Poisoning deaths	N = 132	N= 103	N = 96	N = 72
Alcohol		18	24	22
Methadone	18		61	19
Diazepam	24	61		30
Heroin	22	19	30	
Pregabalin	9	31	43	12
Zopiclone	15	34	31	13
Alprazolam	12	22	22	14
Flurazepam	9	25	31	8
Cocaine	8	24	23	13
Amitriptyline	~	5	7	~
Citalopram	7	7	7	~
Olanzapine	5	12	15	6
Quetiapine	~	7	8	~
MDMA	0	~	~	~

\*This is a multi-response table taking account of up to six drugs. Therefore numbers in columns will not add up to totals shown, as individual cases have more than one drug implicated in their death.

~ Less than five deaths.

## Non-poisoning deaths in 2016

**Non-poisoning deaths** are deaths among people with a history of drug dependency or non-dependent problematic use of drugs whether or not the use of the drug had a direct impact on the cause of death. In 2015, for the first time, the number of non-poisoning deaths was higher than poisoning deaths; this trend continues in 2016.

The number of non-poisoning deaths increased by 3%, from 370 in 2015 to 382 in 2016 (Table 1). These deaths are categorised as being due to either trauma (172) or to medical causes (210).

The **main causes** of non-poisoning deaths were hanging [trauma] (93, 24%) and cardiac events [medical] (56, 15%) (Figure 3). Deaths due to liver disease have increased from 21 deaths in 2014 to 45 deaths in 2016.

A younger cohort died from traumatic causes (median age of 34 years) in comparison to deaths due to medical causes (median age of 46 years) (Table 1). The median age for deaths due to medical causes has increased from 38 years in 2004 to 46 years in 2016, which is most likely indicating an ageing cohort of drug users in Ireland.

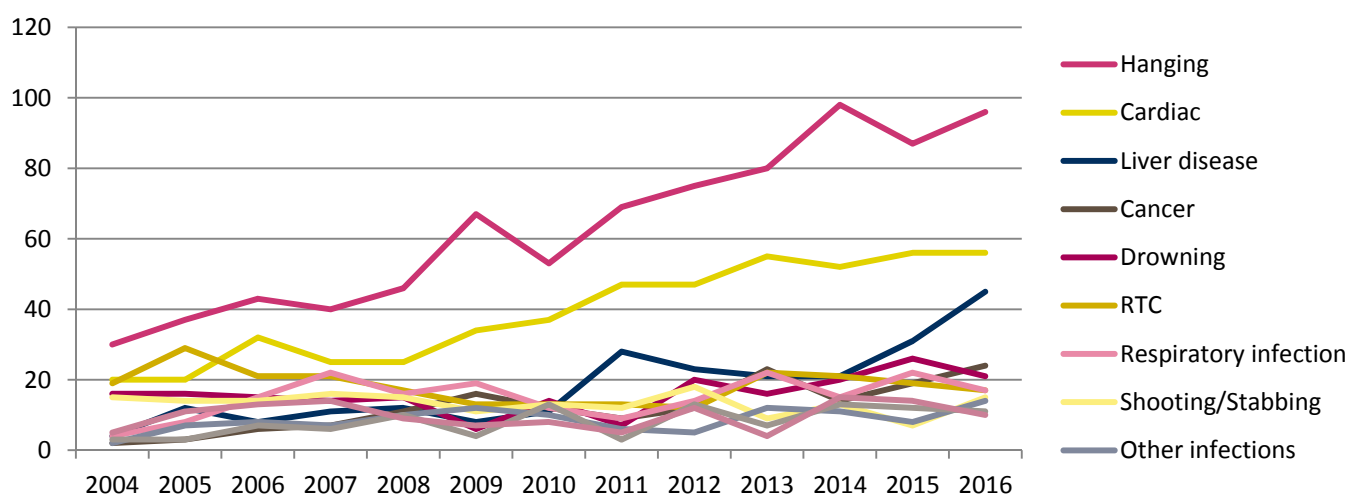


Figure 3 Non-poisoning deaths: main causes, NDRDI 2004 to 2016, (N = 3,610)

### Traumatic deaths as a result of hanging in 2016

Deaths due to **hanging** accounted for 24% of all non-poisoning deaths in 2016, unchanged from previous years:

- The majority were male (77, 83%)
- 7 in 10 (75%) had a history of mental health problems
- Cocaine followed by cannabis were the most common drugs used by those who died as a result of hanging.

### References

This document may be cited as: Health Research Board (2019) National Drug-Related Deaths Index 2004 to 2016 data. Available at: <http://www.drugsandalcohol.ie/30174> and at [www.hrb.ie/publications](http://www.hrb.ie/publications)

More detailed information on the methodology can be found in previously published HRB Trends Series papers - <https://www.hrb.ie/publications/publications/3/>

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